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Commissioner for Patents
PO Box 1450
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Art Unit 1652

Re: U.S. Utility Patent Application
Application No. 09/229,173; Filed: January 13, 1999
For: **Cloned DNA Polymerases From *Thermotoga maritima* and Mutants Thereof**
Inventor: Deb K. CHATTERJEE
Our Ref: 0942.2800008/RCM/GLL

Sir:

In response to the Office Communication dated September 29, 2004, transmitted herewith for appropriate action are the following documents:

1. Corrected "Listing of the Claims" section of the Amendment and Reply Under 37 C.F.R. § 1.111 filed on 9/20/04; and

2. One return postcard.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

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RCM/GLL/eaf
Enclosures

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Listing of the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

1-37. (canceled)

38. (previously presented) A mutant *Tma* DNA polymerase having a mutation in the O-helix resulting in said DNA polymerase becoming non-discriminating against dideoxynucleotides, or a fragment of said mutant DNA polymerase said fragment having polymerase activity.

39. (canceled)

40. (previously presented) The mutant *Tma* DNA polymerase of claim 38, wherein said O-helix is defined as RXXXKXXXFXXXYX, wherein X is any amino acid.

41. (previously presented) The *Tma* polymerase of claim 40, wherein said mutation is a $Phe^{730} \rightarrow Tyr^{730}$ substitution.

42. (previously presented) A method of synthesizing a double-stranded DNA molecule comprising:

(a) hybridizing a primer to a first DNA molecule; and

(b) incubating said DNA molecule in the presence of one or more deoxy or dideoxyribonucleoside triphosphates and the DNA polymerase of claim 38, under conditions sufficient to synthesize a second DNA molecule complementary to all or a portion of said first DNA molecule.

43. (currently amended) A method of amplifying a double stranded DNA molecule, comprising:

(a) providing a first and second primer, wherein said first primer is complementary to a sequence at or near the 3'-termini of the first strand of said DNA molecule and said second primer is complementary to a sequence at or near the 3'-termini of the second strand of said DNA molecule;

(b) hybridizing said first primer to said first strand and said second primer to said second strand in the presence of [[a]] said DNA polymerase of claim 38, under conditions such that a third DNA molecule complementary to said first strand and a fourth DNA molecule complementary to said second strand are synthesized;

(c) denaturing said first and third strand, and said second and fourth strand; and

(d) repeating (a) to (c) one or more times.

44. (currently amended) A method of sequencing a DNA molecule, comprising:

(a) hybridizing a primer to a first DNA molecule;

(b) contacting said first DNA molecule ~~of step (a)~~ with deoxyribonucleoside triphosphates, [[a]] said DNA polymerase of claim 38, and a terminator nucleotide to form a mixture;

(c) incubating the mixture ~~of step (b)~~ under conditions sufficient to synthesize a random population of DNA molecules complementary to said first DNA molecule, wherein said synthesized DNA molecules are shorter in length than said first DNA molecule and wherein said synthesized DNA molecules comprise a terminator nucleotide at their 3' termini; and

(d) separating said synthesized DNA molecules by size so that at least a part of the nucleotide sequence of said first DNA molecule can be determined.